

Amended
25. (Amended) The transparent polyolefin resin sheet according to Claim 24, wherein the content of said ethylene-vinyl acetate copolymer resin ranges from 5 wt% to 30 wt%.

REMARKS

Reconsideration of the issues raised in the above referenced Office Action is respectfully solicited.

There is no indication that the prior art of record in parent Patent Application Serial No. 08/954 957 has been considered. Per MPEP § 609, page 600-119, references considered in a parent application are considered in a continuation-in-part application. The references do not need to be resubmitted. Attached Form PTO-1449 is provided to ensure that the references from the parent application are officially made of record in this application. Thus, initialing and return of Form PTO-1449 is respectfully requested.

The rejection of Claims 1-25 under 35 USC § 112, second paragraph as being indefinite has been considered.

The term "soft" transparent polyolefin resin sheet is objected to as being indefinite. Page 6, lines 1-3 of Applicants' specification defines "soft" as having a modulus of elasticity of less than 1,000 MPa. Amended Claim 1 now recites the specific modulus of elasticity value and the term "soft" has been deleted from the claim to more clearly define the invention.

The Office Action objects to the phrase "hard polypropylene type resin" because of the term "hard". Page 6, lines 15-20 of Applicants' specification defines a modulus of elasticity corresponding to the term "hard". To more clearly define the invention, the term "hard" has been deleted from Claim 1 and replaced with the phrase ---having a modulus of elasticity of at least 500 MPa--- which corresponds to the defined term.

In Claim 3, the phrase "modulus of elasticity under tension of the sheet" has been changed to ---modulus of elasticity--- to overcome the rejection.

In Claims 4-6, 8 and 9 the subject matter in parentheses has either been deleted or the parentheses have been removed to clearly define the claimed invention. In Claim 7 the parentheses define a bottom part of a fraction and thus remain.

The Office Action objects to the phrase "ratio of mmmmm" in Claim 6. Claim 6 now defines and discusses the term "mmmmmm" as an isotactic pentad. The Office Action objects to the term "rrrrr" in Claim 7. Amended Claim 7 now defines the term "rrrrr" as a state of syndiotacticity. Page 6, line 21 through page 7, line 16 of the specification defines the terms "mmmmmm" and "rrrrr".

For the above reasons, reconsideration and withdrawal of the rejection of Claims 1-25 under 35 USC § 112, second paragraph is respectfully requested.

The rejection of Claims 1-25 under 35 USC § 103 as being unpatentable over Genske (U.S. Patent No. 4 778 697) has been considered.

Genske discloses using polymer blends to make a multiple layer films. In the multi-layer films, at least one layer is a blend of polyethylene and another layer is polypropylene blended with elastomers and/or ethylene-based copolymers. Genske desires a packaging structure having high temperature processability, a strong heat seal and resistance to water vapor transmission at a moderate thickness. Genske also requires excellent resistance to physical shocks by the polymer film. Table 1 of Genske discloses maximizing the height from which the films are dropped containing a liter of water without breaking. As best understood, Genske does not disclose or suggest forming a transparent film.

In all of the disclosed embodiments, Genske uses high-density polyethylene (HDPE) as an intermediate layer for securing heat-resistance as a retort package. Since HDPE has high crystallinity and great size of crystals when being molded as a sheet, high-density polyethylene sheets typically are translucent (slight white). If a low-density polyethylene were used by Genske for improving transparency, heat-resistance would be deteriorated and the desired results would not be obtained. Thus Genske teaches away from forming a transparent sheet.

The Office Action indicates that one of ordinary skill in the art would have in view of the teachings of Genske, found it obvious to optimize physical properties of the laminate by varying proportions of blends and thicknesses of individual layers. The Office Action then states that Genske would utilize the various disclosed types of layers and materials to produce the properties desired therein. As discussed above, however, the properties desired by Genske are high temperature processability, strong heat sealing and resistance to water vapor transmission. Genske has no concern regarding the transparency of the film being made. Thus, there is no motivation, absent Applicants' specification, to modify the polymer blends and the method for forming such blends in Genske to provide the physical characteristics set forth in Applicants' claims.

Further, Applicants' claims recite features not disclosed in Genske. Claim 1 recites a transparent polyolefin resin sheet having a modulus of elasticity from 20 MPa to 1,000 MPa and "an average length of a foreign substance that has a refractive index different from a non-crystalline resin composition occupying the most volume fraction being less than 10 μm , and the number of foreign substances in any section of the sheet being less than 500 foreign substances/ mm^2 ". As best understood Genske does not disclose forming a "transparent"

film, and certainly not a transparent sheet having the specific properties recited above.

For the above reasons, reconsideration and allowance of independent Claim 1, and Claims 2-25 dependent therefrom, is respectfully requested.

Pursuant to 37 CFR § 1.121, attached hereto are separate marked up versions of the changes made to Claims 1-25 by the current amendment.

Further and favorable reconsideration is respectfully solicited.

Respectfully submitted,

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Encls: Marked Up Claims 1-25
Form PTO-1449, excluding cited references
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1. (Amended) A ~~soft~~transparent polyolefin resin sheet having a multilayered structure wherein at least one surface layer is made of a ~~hard~~first polypropylene ~~type~~resin having a modulus of elasticity of at least 500 MPa and at least one other layer is made of a ~~soft~~second transparent polyolefin resin, the transparent polyolefin resin sheet having the following properties:

- (a) a modulus of elasticity from 20 MPa to 1,000 MPa;
- (b) an average length of a foreign substance that has a refractive index different from a non-crystalline resin composition occupying the most volume fraction being less than 10 μm , and the number of foreign substances in any section of the sheet being less than 500 foreign substances/ mm^2 ; and
- (c) less than 0.2 μm of surface-roughness Ra of the at least one surface layer.

2. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 1, said multilayered structure having at least three layers including both the surface layers and an intermediate layer, said surface layers being composed of said ~~hard~~polypropylene ~~type~~resin, and said intermediate layer being composed of said ~~soft~~transparent polyolefin resin.

3. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 1, wherein the modulus of elasticity ~~under tension of the sheet is~~ from 50 to 800 MPa.

4. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~surface layer is made of a resin~~first polypropylene resin is selected from a group consisting of: homo-polypropylene, ethylene-propylene random copolymer having an ~~ethylene~~ content ranging from 0.1 wt% to

10wt%}, and ethylene-butene-propylene random copolymer having an {ethylene and butene content ranging from 0.1 wt% to 10 wt%}.

5. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 2, wherein said ~~surface layer is made of~~ a first polypropylene resin is selected from homo-polypropylene, ethylene-propylene random copolymer having an {ethylene content ranging from 0.1 wt% to 10 wt%}, and ethylene-butene-propylene random copolymer having an {ethylene and butene content ranging from 0.1 wt% to 10wt%}.

6. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~soft~~transparent polyolefin resin is a low-stereoregular polypropylene type resin having a ratio of ~~mmmm (a value of PI)~~, which is an isotactic pentad, ranging from 50% to 90% in a pentad ratio measured by using ¹³C-NMR with respect to stereoregularity of homo-polypropylene.

7. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 6, wherein a value of $rrrr/(1-mmmm)$ of said low-stereoregular polypropylene type resin ranges from 15% to 50%, wherein rrrr represents the state of syndiotacticity.

8. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 6, wherein said low-stereoregular polypropylene ~~type~~resin consists of a boiled heptane insoluble polypropylene ~~type~~resin of {from 50 wt% to 95 wt%} and having ~~thea~~ limiting viscosity ranging from $[\eta]0.5$ dl/g to $[\eta]9.0$ dl/g, and a boiled heptane soluble polypropylene ~~type~~resin of {from 5 wt% to 50 wt%} and having ~~thea~~ limiting viscosity of more than $[\eta]1.2$ dl/g.

9. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~seftt~~transparent polyolefin resin is an ethylene-propylene random copolymer having an ~~ethylene content ranging from 5 wt% to 30 wt%~~.

10. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 9, wherein the proportion of ethylene-propylene random copolymer in a unit PPEP composed or continued four elements of ethylene (E) and propylene (P) has a racemic configuration for a continued part of PP that is extremely small.

11. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~seftt~~transparent polyolefin resin is a non-crystalline butene-1-propylene copolymer.

12. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~seftt~~transparent polyolefin resin is a compound of a non-crystalline butene-1-propylene copolymer and polypropylene.

13. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~seftt~~transparent polyolefin resin is a propylene-ethylene-butene-1 copolymer.

14. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~seftt~~transparent polyolefin resin is a compound of a propylene-ethylene-butene-1 copolymer and polypropylene.

15. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~seftt~~transparent polyolefin resin contains a reactor blending type ethylene-propylene copolymer elastomer.

16. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~soft~~transparent polyolefin resin contains a reactor blending type ethylene-propylene-butene-1 copolymer.

17. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 1, wherein said ~~soft~~transparent polyolefin resin is selected from at least one of an ethylene monopolymer and an ethylene- α -olefin copolymer.

18. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 17, wherein said ethylene monopolymer is at least one selected from a high-pressure-produced low-density polyethylene and a low-pressure-produced low-density polyethylene.

19. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 17, wherein said ethylene- α -olefin copolymer is ~~at least one~~selected from a group consisting of: Ziegler-Natta catalyst type linear low-density polyethylene, a metallocene catalyst type linear low-density polyethylene, and an ethylene-octene copolymer having long branching in a main chain polymerized by using constrained geometry catalyst technology.

20. (Amended) The ~~soft~~transparent polyolefin resin sheet according to Claim 1, wherein the ~~soft~~transparent polyolefin resin is composed of a ~~soft~~polypropylene ~~type~~resin different than said first polypropylene resin.

21. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 20, wherein 2 wt% to 30 wt% of hydrogenated styrene-butadiene rubber is mixed into said ~~seftt~~transparent polyolefin resin.

22. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 20, wherein 2 wt% to 30 wt% of an ethylene- α -olefin copolymer is mixed into said ~~seftt~~transparent polyolefin resin.

23. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 20, wherein 2 wt% to 30 wt% of an ethylene-octene copolymer is mixed into said ~~seftt~~transparent polyolefin resin.

24. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 1, the ~~seftt~~transparent polyolefin resin comprising:

a polypropylene type thermoplastic elastomer; and
an ethylene-vinyl acetate copolymer resin.

25. (Amended) The ~~seftt~~transparent polyolefin resin sheet according to Claim 24, wherein the content of said ethylene-vinyl acetate copolymer resin ranges from 5 wt% to 30 wt%.